

What is claimed is:

1. An apparatus for calibrating voltage spikes used in testing an electrical device, comprising:

an input for receiving a voltage spike;

power supply inputs for receiving power for energizing the electrical device under test, the power supply inputs comprising a high voltage input, a common input and a ground input;

a plurality of outputs comprising a high voltage output, a common output, and a ground output, the plurality of outputs being configured for connection to corresponding high voltage, common and ground inputs of the electrical device, the common power supply input and ground power supply input being connected to the common output and ground output, respectively; and

a circuit joined to selectively connect and disconnect the power supply high voltage input to and from, respectively, the high voltage output, said circuit further joined to select a pair of the plurality of outputs, said circuit being capable of transforming the voltage spike received at

the input into a predetermined voltage spike waveform for application to the selected pair of outputs.

2. The apparatus according to claim 1 wherein the circuit comprises a capacitive circuit having a variable capacitance such that the capacitive circuit exhibits a selected capacitance of a plurality of preselected capacitances, the predetermined voltage spike waveform being based on the selected capacitance exhibited by the capacitive circuit.
3. The apparatus according to claim 1 wherein the input for receiving the voltage spike comprises a high voltage spike input and a common voltage spike input, and wherein the circuit transforms the voltage spike into a first predetermined voltage spike waveform, attenuates the high voltage power supply input from the high voltage output, connects the high voltage spike input to the high voltage output, and applies the first predetermined voltage spike waveform to the high voltage output and common output.
4. The apparatus according to claim 3 wherein the circuit is capable of transforming the voltage spike into a second predetermined voltage spike waveform and can apply the second predetermined voltage spike waveform to the high voltage and ground outputs.

5. The apparatus according to claim 4 wherein the circuit is capable of transforming the voltage spike into a third predetermined voltage spike waveform and can apply the third predetermined voltage spike waveform to the common voltage and ground outputs.
6. The apparatus according to claim 5 wherein the circuit comprises a capacitive circuit having a variable capacitance such that the capacitive circuit exhibits a selected capacitance of a plurality of preselected capacitances, each of the first, second and third predetermined voltage spike waveforms being based on the selected capacitance exhibited by the capacitive circuit.
7. The apparatus according to claim 6 wherein the capacitive circuit comprises:
 - a plurality of capacitors; and
 - a switch for selecting at least one of said plurality of capacitors to provide a resulting capacitance that is to be exhibited by the capacitive circuit.
8. The apparatus according to claim 7 wherein when the switch selects a plurality of capacitors, the selected plurality of capacitors are connected in a parallel circuit.

9. The apparatus according to claim 1 wherein the circuit comprises a switch for selecting the pair of the plurality of outputs to which the predetermined voltage spike waveform is applied.

10. The apparatus according to claim 1 further comprising a monitoring circuit joined to the circuit of said plurality of outputs for monitoring the predetermined voltage spike waveform.

11. A method of testing an electrical device, comprising:

providing an electrical device under test having high voltage, common and ground inputs;

providing a power source for energizing the electrical device under test wherein the power source has high voltage, common and ground outputs and connecting the common and ground outputs of the power source to the common and ground inputs, respectively, of the electrical device under test;

selecting a pair of inputs of the electrical device; connecting the power supply high voltage input to the high voltage input of the electrical device under test if the selected pair of inputs comprises the high voltage and common inputs of the electrical device;

generating a voltage spike;

transforming the voltage spike into a predetermined voltage spike waveform; and

applying the predetermined voltage spike waveform to the selected pair of inputs of the electrical device under test.

12. The method according to claim 11 further comprising the step of providing a capacitive circuit having a variable capacitance and wherein the step of transforming comprises varying the capacitance of the capacitive circuit to exhibit a particular capacitance upon which the predetermined voltage spike waveform is based.

13. The method according to claim 11 wherein when the selected pair of the plurality of inputs comprises the high voltage and common inputs of the electrical device under test, the step of transforming comprises transforming the voltage spike into a first predetermined voltage spike waveform, and the step of applying comprises applying the first predetermined voltage spike waveform to the high voltage and common inputs of the electrical device under test.

14. The method according to claim 13 further comprising:

transforming the voltage spike into a second predetermined voltage spike waveform;

selecting the high voltage and ground inputs of the electrical device under test; and

applying the predetermined voltage spike waveform to the high voltage and ground inputs of the electrical device under test.

15. The method according to claim 14 further comprising:

transforming the voltage spike into a third predetermined voltage spike waveform;

selecting the common and ground inputs of the electrical device under test; and

applying the predetermined voltage spike waveform to the common voltage and ground inputs of the electrical device under test.

16. The method according to claim 15 wherein each of the first, second and third predetermined voltage spike waveforms has different waveform characteristics.

17. The method according to claim 11 further including monitoring the predetermined voltage spike waveform.